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DECEMBER 1966
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METEOROLOGICAL DATA REPORT

NIKE-HYDAC STV (SR-043)
(22 November 1966)

BY

H. M. RICHART

ATMOSPHERIC SCIENCES LABORATORY
WHITE SANDS MISSILE RANGE, NEW MEXICO

ECOM
UNITED STATES ARMY ELECTRONICS COMMAND

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DA Task IV650212A127-02

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WHITE SANDS MISSILE RANGE, NEW MEXICO

ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV (SR-043) are presented for the Ballistic Systems Division, U. S. Air Force, Avco Corporation, and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

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INTRODUCTION

Nike-Hydac STV (SR-043) was launched from Launch Complex 33, L-314, White Sands Missile Range (WSMR), New Mexico, at 0902 hours MST, 22 November 1966.

Meteorological data used in conjunction with theoretical calculations to predict rocket impact were collected by the Meteorological Support Division, Atmospheric Sciences Laboratory (ASL), WSMR, New Mexico. The Ballistics Meteorologist for this firing was H. M. Richart, assisted by SFC Leon H. Allen, U. S. Army.

DISCUSSION

Wind data for the first 216 feet above the surface were obtained from a system composed of 5 Aerovanes mounted on a 200-foot tower and cabled to 5 component wind indicators.

From 216 to 4000 feet above the surface, wind data were obtained from double-theodolite-observed balloon ascents.

Temperature, pressure, and humidity data, along with upper wind data from 4,000 to 76,000 feet above the surface, were obtained from standard rawinsonde observations.

Mean wind component values in each ballistic zone were determined from vertical cross sections by the equal-area method.

Theoretical rocket performance values and ballistic factors as a function of altitude were provided by ASL, and are the basis for data appearing in Table IX.

PAYLOAD		233	Pounds
CORIOLIS DISPLACEMENT	WEST	4.9	Miles
SECOND-STAGE IGNITION	TIME	20.2	Seconds
	ALTITUDE	36,673	Feet MSL
PEAK	TIME	236.2	Seconds
	ALTITUDE	718,586	Feet MSL
UNIT WIND EFFECT	HEAD/TAIL	2.577	Miles/MPH
	CROSS	2.573	Miles/MPH
			Miles/MPH
TOWER TILT EFFECT		14.08	Miles/Degree

TABLE I. THEORETICAL ROCKET PERFORMANCE VALUES
NIKE-HYDAC STV (SR-043)

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
00- 11	.0000
11- 60	.1482
60- 108	.1028
108- 148	.0671
148- 184	.0544
184- 216	.0315
216- 300	.0835
300- 400	.0681
400- 600	.0727
600- 800	.0503
800-1000	.0432

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
1000- 1400	.0703
1400- 2000	.0563
2000- 2500	.0299
2500- 3000	.0166
3000- 3500	.0203
3500- 4000	.0041
4000- 4263	-.0067
4263- 9000	-.0109
9000-15000	-.0124
15000-21000	-.0104
21000-26000	-.0072

LAYERS IN FEET ABOVE GROUND	BALLISTIC FACTORS
26000-32647	-.0057
32647-34000	.0415
34000-36000	.0315
36000-41000	.0343
41000-46000	.0126
46000-51000	.0055
51000-56000	.0035
56000-61000	.0024
61000-66000	.0018
66000-73497	.0009
73497-76000	.0001

TABLE II. BALLISTIC FACTORS
NIKE-HYDAC STV (SR-043)

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 0645 MST		2 0725 MST		3 0745 MST		4 0800 MST		5 0815 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	1.5S	1.0E	2.0S	0.0E	2.0S	0.0	4.5S	1.0E	2.0S	1.0W
2	1.5	2.5	1.5	3.5	5.0	0.5E	5.0	0.0	3.0	2.0
3	1.0	2.0	1.0	2.0	7.0	1.0	6.5	1.5E	4.0	0.0
4	1.0	2.5	1.0	2.0	8.0	0.0	7.0	1.5	5.0	0.0
5	1.5	3.5	2.0	4.0	4.0	0.0	4.0	1.0	4.0	0.5E

AERO-VANE NO. *	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6 0825 MST		7 0835 MST		8 0845 MST		9 0902 MST			
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
1	3.0S	1.0W	4.0S	1.0E	0.0	2.0W	0.0	0.0		
2	3.0	2.0	4.0	0.0	0.0	3.0	0.0	2.0W		
3	4.0	1.0	4.0	1.0E	1.0S	0.0	2.5S	1.5		
4	4.0	1.0	4.0	1.0	1.0	0.0	2.5	0.0		
5	3.0	0.0	3.0	0.0	0.0	1.0W	2.0	2.0E		

TABLE III. ANEMOMETER WIND SPEED AND DIRECTION
NIKE-HYDAC STV (SR-043)

* Heights corresponding to Aerovane Numbers: 1 = 35 Feet 3 = 128 Feet 5 = 200 Feet
2 = 88 Feet 4 = 168 Feet

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	1 0645 MST		2 0725 MST		3 0745 MST		4 0800 MST		5 0815 MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	0.0	2.0W	1.0S	1.0W	4.0S	0.5W	2.5N	1.5E	5.0N	1.0E
300- 400	0.5N	3.0	3.0	1.0	4.0	0.5	0.0	2.0	6.5	1.0
400- 600	0.5N	6.0	3.0	2.5	4.5	1.0	4.0S	1.5	7.0	0.5
600- 800	0.5S	8.0	1.0	5.5	5.0	2.5	1.5	1.5W	6.5	0.0
800-1000	1.5	10.5	1.0N	8.0	5.0	3.5	1.0	3.0	5.5	0.0
1000-1400	3.0	11.0	1.0S	9.0	3.0	6.5	2.0	3.5	3.5	2.5W
1400-2000	5.0	10.5	5.0	9.5	4.5	6.5	4.5	6.0	3.0	5.5
2000-2500	5.5	12.5	6.0	11.0	4.5	7.5	4.0	9.5	5.0	9.0
2500-3000	7.5	13.0	7.0	13.0	5.5	11.5	5.0	10.5	5.0	13.5
3000-3500	9.5	13.0	7.5	15.0	8.5	14.5	7.0	12.0	6.5	15.0
3500-4000	10.0	14.5	9.0	15.0	11.0	14.0	9.0	15.5	9.5	15.5

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA
NIKE-HYDAC STV (SR-043)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN MILES PER HOUR									
	6 0825 MST		7 0835 MST		8 0845 MST		9 0902 MST		MST	
	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W
216- 300	4.0S	0.0E	4.0S	0.0E	1.5S	0.5W	3.0S	1.5E		
300- 400	6.5	1.0E	5.0	1.0E	4.0	0.5E	3.5	1.5		
400- 600	7.5	1.0	6.0	1.5	4.0	1.5	4.5	1.5		
600- 800	5.5	0.5	5.0	2.0	3.5	3.0	3.0	2.5		
800-1000	5.5	0.5W	4.5	2.0	2.5	3.0	1.5	3.0		
1000-1400	3.0	3.0	3.5	1.0	0.0	2.0	1.0	1.0W		
1400-2000	4.0	4.0	3.5	3.5N	2.0S	5.0W	1.0N	7.0		
2000-2500	4.0	7.5	3.5	7.5	3.5	9.0	2.0	11.0		
2500-3000	5.5	11.5	5.5	11.0	4.0	12.5	2 0	13.5		
3000-3500	8.0	14.5	5.5	14.0	7.0	13.5	3.0S	17.5		
3500-4000	9.5	15.5	7.0	17.0	6.5	16.5	10.0	18.0		

TABLE IV. PILOT-BALLOON-MEASURED WIND DATA (Cont)
NIKE-HYDAC STV (SR-043)

LAYERS IN FEET ABOVE GROUND	MEAN WIND COMPONENTS IN KNOTS					
	1 0545 MST		2 0845 MST			
	N-S	E-W	N-S	E-W	N-S	E-W
4000- 4263	7.5S	12.0W	7.5S	12.0W		
4263- 9000	6.5	18.0	10.0	17.5		
9000-15000	9.0	25.0	12.0	21.0		
15000-21000	12.0	21.0	12.0	21.5		
21000-26000	15.0	41.5	15.5	42.5		
26000-32647	17.5	48.0	20.0	54.5		
32647-34000	27.5	47.5	21.0	58.5		
34000-36000	0.0	60.0	11.5	66.0		
36000-41000	0.0	64.0	0.0	61.0		
41000-46000	10.0S	57.0	10.0S	58.0		
46000-51000	0.0	57.0	0.0	49.0		
51000-56000	7.5S	43.5	6.5S	37.5		
56000-61000	0.0	29.0	0.0	17.0		
61000-66000	4.0N	11.5	0.0	10.0		
66000-73497	9.0S	1.5	5.0N	3.0E		
73497-76000	2.5N	7.0	2.0S	2.0E		

TABLE V. RAWINSONDE-MEASURED WIND DATA
NIKE-HYDAC STV (SR-043)

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0545 HRS MST
ASCENSION NO. 952

UPPER AIR DATA
0542003909
WHITE SANDS SITE
TABLE VI

MSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	880.4	2.8	1.8	93.6	1108.3	647.8	30.0	1.9	1.000281
4000.0	880.0	3.1	1.8	91.5	1106.8	648.1	29.4	2.0	1.000281
4500.0	864.0	14.4	2.4	44.0	1043.6	661.3	2.9	3.9	1.000266
5000.0	848.6	15.9	-1.1	31.3	1020.4	662.8	336.3	5.8	1.000253
5500.0	833.5	15.5	-2.1	29.9	1003.8	662.3	309.7	7.7	1.000248
6000.0	818.6	14.8	-3.1	29.0	988.3	661.5	283.2	9.7	1.000242
6500.0	803.7	13.6	-4.1	29.0	974.4	660.1	256.6	11.6	1.000238
7000.0	789.1	12.5	-5.1	29.0	960.6	658.7	249.5	12.4	1.000233
7500.0	774.7	11.3	-6.1	29.0	947.1	657.3	245.1	13.1	1.000229
8000.0	760.6	10.2	-7.1	29.0	933.8	656.0	243.3	14.5	1.000225
8500.0	746.8	9.0	-8.1	29.0	920.7	654.6	242.3	16.1	1.000221
9000.0	733.2	7.8	-9.1	29.0	907.7	653.2	243.1	17.4	1.000217
9500.0	719.9	6.7	-10.1	29.0	895.0	651.8	245.0	18.3	1.000213
10000.0	706.8	5.5	-11.1	29.0	882.5	650.5	246.3	18.9	1.000209
10500.0	693.9	4.4	-12.2	29.0	870.1	649.1	247.2	19.1	1.000206
11000.0	681.1	3.2	-13.0	29.4	857.7	647.6	248.0	19.4	1.000202
11500.0	668.3	1.9	-13.8	30.1	845.5	646.2	248.9	19.9	1.000199
12000.0	655.8	0.7	-14.7	30.7	833.4	644.7	249.7	21.0	1.000196
12500.0	643.5	-0.5	-15.5	31.3	821.5	643.3	250.6	23.0	1.000192
13000.0	631.4	-1.8	-16.4	31.9	809.8	641.8	252.2	24.4	1.000189
13500.0	619.4	-2.3	-11.3	50.4	795.6	641.3	254.4	25.6	1.000191
14000.0	607.7	-2.7	-18.6	28.4	782.2	640.6	256.3	26.2	1.000182
14500.0	596.1	-3.1	-24.6	17.4	768.8	640.0	257.9	26.6	1.000176
15000.0	584.7	-4.0	-24.8	18.1	756.6	639.0	258.4	26.5	1.000173
15500.0	573.6	-4.9	-25.1	18.9	744.5	637.9	256.8	27.4	1.000170
16000.0	562.5	-6.2	-25.6	20.0	733.8	636.3	254.2	29.0	1.000168
16500.0	551.5	-7.7	-26.2	21.1	723.5	634.6	253.4	29.5	1.000165
17000.0	540.8	-9.1	-26.9	22.2	713.3	632.9	252.8	29.8	1.000163
17500.0	530.3	-10.5	-27.6	23.3	703.3	631.2	252.8	28.0	1.000160
18000.0	520.0	-11.8	-29.1	21.5	691.6	630.2	252.8	26.0	1.000157

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0545 HRS MST
ASCENSION NO. 922

UPPER AIR DATA
0542003909
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
18500.0	505.8	-11.4	-31.7	17.0	678.4	630.0	252.4	23.9	1.000153
19000.0	499.6	-12.6	-32.6	17.0	667.7	628.7	252.0	21.8	1.000151
19500.0	489.6	-13.7	-33.6	17.0	657.2	627.3	249.9	20.4	1.000148
20000.0	479.8	-14.8	-34.5	17.0	646.9	626.0	246.8	19.4	1.000146
20500.0	470.3	-15.9	-35.4	17.0	636.7	624.6	243.5	18.9	1.000144
21000.0	460.9	-17.0	-36.3	17.0	626.7	623.3	239.6	19.3	1.000141
21500.0	451.7	-18.1	-37.3	17.0	616.8	622.0	235.9	19.7	1.000139
22000.0	442.7	-19.2	-38.2	17.0	607.2	620.6	234.1	20.3	1.000137
22500.0	433.8	-20.2	-39.0	17.1	597.4	619.3	232.3	20.9	1.000134
23000.0	424.8	-21.1	-39.6	17.3	587.2	618.2	235.6	21.2	1.000132
23500.0	416.1	-22.0	-40.3	17.5	577.1	617.2	239.2	21.7	1.000130
24000.0	407.5	-22.9	-40.9	17.7	567.2	616.1	244.0	24.9	1.000127
24500.0	399.1	-23.7	-41.5	17.9	557.4	615.0	248.5	27.5	1.000125
25000.0	390.9	-24.6	-42.2	18.1	547.9	613.9	252.5	31.1	1.000123
25500.0	382.8	-25.5	-42.8	18.4	538.5	612.8	254.0	35.0	1.000121
26000.0	374.9	-26.4	-43.4	18.6	529.3	611.7	253.6	39.0	1.000119
26500.0	367.2	-27.3	-44.1	18.8	520.2	610.6	253.4	41.9	1.000117
27000.0	359.6	-28.2	-44.7	19.1	511.4	609.5	253.1	44.4	1.000115
27500.0	352.0	-29.5	-45.1	20.7	503.3	607.8	252.2	46.3	1.000113
28000.0	344.6	-30.8	-45.5	22.4	495.3	606.2	251.1	47.8	1.000111
28500.0	337.3	-32.1	-46.0	24.0	487.5	604.6	249.7	48.8	1.000109
29000.0	330.1	-33.4	-46.5	26.0	479.6	602.9	248.5	49.7	1.000107
29500.0	322.9	-34.7	-46.7	28.5	471.6	601.3	247.3	50.4	1.000106
30000.0	315.8	-35.9	-47.1	31.1	463.8	599.8	246.6	50.9	1.000104
30500.0	308.9	-37.2	-47.6	33.6	456.1	598.2	246.4	50.8	1.000102
31000.0	302.2	-38.4	-48.1	36.1	448.6	596.6	246.6	50.9	1.000100
31500.0	295.6	-39.7	-48.6	38.6	441.2	595.0	247.9	51.7	1.000099
32000.0	289.2	-41.0	-49.2	41.1	433.9	593.4	249.3	52.3	1.000097
32500.0	282.9	-42.2	-49.9	43.6	426.8	591.7	251.5	51.5	1.000095
33000.0	276.4	-43.6	-51.6	41.2**	419.5	590.0	253.7	51.3	1.000094

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0545 HRS MST
ASCENSION NO. 922

UPPER AIR DATA
0542003909
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
33500.0	270.0	-45.0	-53.6	37.9**	412.2	588.2	255.9	32.8	1.000092
34000.0	263.8	-46.3	-55.6	34.6**	405.2	586.4	258.2	53.7	1.000090
34500.0	257.7	-47.7	-57.7	31.4**	398.2	584.6	260.8	53.4	1.000089
35000.0	251.7	-49.1	-59.8	28.1**	391.4	582.8	262.6	53.3	1.000087
35500.0	245.9	-50.5	-61.9	24.8**	384.7	581.0	263.1	53.4	1.000086
36000.0	240.2	-51.9	-64.2	21.5**	378.2	579.2	263.5	53.5	1.000084
36500.0	234.6	-53.2	-66.6	18.2**	371.7	577.4	263.5	53.4	1.000083
37000.0	229.2	-54.6	-69.2	15.0**	365.4	575.6	263.4	53.6	1.000081
37500.0	223.9	-56.0	-72.1	11.7**	359.2	573.8	262.8	55.0	1.000080
38000.0	218.7	-57.4	-75.4	8.4**	353.2	572.0	262.4	56.4	1.000079
38500.0	213.7	-58.7	-79.6	5.1**	347.2	570.1	263.9	58.3	1.000077
39000.0	208.7	-60.1	-86.6	1.8**	341.4	568.3	265.3	60.1	1.000076
39500.0	203.8	-61.1	0.	-0. **	334.9	567.0	267.7	63.5	1.000075
40000.0	198.8	-61.7	0.	-0. **	327.6	566.2	270.1	66.8	1.000073
40500.0	194.0	-62.2	0.	-0. **	320.5	565.5	273.2	68.5	1.000071
41000.0	189.3	-62.8	0.	-0. **	313.5	564.8	276.4	69.9	1.000070
41500.0	184.7	-63.3	0.	-0. **	306.7	564.1	278.5	69.5	1.000068
42000.0	180.2	-63.7	0.	-0. **	299.7	563.6	280.2	68.5	1.000067
42500.0	175.7	-63.9	0.	-0. **	292.6	563.2	280.3	65.2	1.000065
43000.0	171.4	-64.2	0.	-0. **	285.8	562.9	279.8	61.3	1.000064
43500.0	167.2	-64.4	0.	-0. **	279.0	562.6	277.2	59.9	1.000062
44000.0	163.1	-64.7	0.	-0. **	272.5	562.2	274.1	59.2	1.000061
44500.0	159.0	-64.9	0.	-0. **	266.1	561.9	270.2	60.1	1.000059
45000.0	155.1	-65.2	0.	-0. **	259.8	561.6	266.2	61.3	1.000058
45500.0	151.3	-65.4	0.	-0. **	253.7	561.2	262.0	61.1	1.000057
46000.0	147.6	-65.7	0.	-0. **	247.8	560.9	257.8	60.7	1.000055
46500.0	143.9	-65.9	0.	-0. **	242.0	560.6	255.9	60.7	1.000054
47000.0	140.4	-66.1	0.	-0. **	236.3	560.2	254.2	60.6	1.000053
47500.0	136.9	-66.4	0.	-0. **	230.7	559.9	254.3	58.6	1.000051
48000.0	133.5	-66.6	0.	-0. **	225.3	559.5	254.6	56.3	1.000050

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0545 HRS MST
ASCENSION NO. 927

UPPER AIR DATA
0542003909
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
48500.0	130.2	-66.9	0.	-0. **	220.0	559.2	255.6	56.4	1.000049
49000.0	127.0	-67.1	0.	-0. **	214.9	558.9	256.9	56.9	1.000048
49500.0	123.9	-67.4	0.	-0. **	209.8	558.5	256.9	58.4	1.000047
50000.0	120.8	-67.6	0.	-0. **	204.9	558.2	256.4	60.3	1.000046
50500.0	117.8	-68.2	0.	-0. **	200.3	557.5	257.0	61.9	1.000045
51000.0	114.9	-69.2	0.	-0. **	196.3	556.1	258.1	63.5	1.000044
51500.0	112.0	-70.2	0.	-0. **	192.3	554.7	259.8	63.5	1.000043
52000.0	109.2	-69.6	0.	-0. **	186.9	555.6	261.8	62.7	1.000042
52500.0	106.5	-68.9	0.	-0. **	181.6	556.5	264.2	58.5	1.000040
53000.0	103.8	-68.9	0.	-0. **	177.1	556.4	266.7	52.7	1.000039
53500.0	101.2	-69.1	0.	-0. **	172.8	556.2	267.8	50.4	1.000038
54000.0	98.7	-69.3	0.	-0. **	168.6	556.0	268.2	49.8	1.000038
54500.0	96.2	-69.5	0.	-0. **	164.5	555.7	268.1	49.2	1.000037
55000.0	93.8	-69.6	0.	-0. **	160.5	555.5	267.7	48.6	1.000036
55500.0	91.4	-69.8	0.	-0. **	156.6	555.3	266.6	48.8	1.000035
56000.0	89.1	-70.0	0.	-0. **	152.8	555.0	265.2	49.5	1.000034
56500.0	86.9	-70.1	0.	-0. **	149.1	554.8	263.1	48.6	1.000033
57000.0	84.7	-69.8	0.	-0. **	145.1	555.3	260.4	46.8	1.000032
57500.0	82.6	-69.1	0.	-0. **	141.1	556.2	257.5	45.4	1.000031
58000.0	80.6	-68.4	0.	-0. **	137.1	557.1	254.3	44.6	1.000031
58500.0	78.5	-67.8	0.	-0. **	133.2	558.0	252.0	42.9	1.000030
59000.0	76.6	-67.1	0.	-0. **	129.5	559.0	251.4	39.7	1.000029
59500.0	74.7	-66.4	0.	-0. **	125.9	559.9	251.4	36.7	1.000028
60000.0	72.8	-65.7	0.	-0. **	122.3	560.8	254.0	34.3	1.000027
60500.0	71.0	-65.9	0.	-0. **	119.4	560.5	256.7	31.8	1.000027
61000.0	69.2	-66.9	0.	-0. **	117.0	559.2	259.1	28.4	1.000026
61500.0	67.5	-67.9	0.	-0. **	114.6	557.9	261.5	25.0	1.000026
62000.0	65.8	-68.9	0.	-0. **	112.3	556.5	262.3	22.5	1.000025
62500.0	64.2	-69.9	0.	-0. **	110.0	555.2	262.7	20.3	1.000024
63000.0	62.6	-70.8	0.	-0. **	107.8	553.9	263.1	18.5	1.000024

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0545 HRS MST
ASCENSION NO. 922

UPPER AIR DATA
0542003909
WHITE SANDS SITE
TABLE VI (Cont)

WSTN SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	61.0	-68.8	0.	-0. **	104.0	556.7	263.6	17.1	1.000023
64000.0	59.5	-66.0	0.	-0. **	100.1	560.4	264.3	15.8	1.000022
64500.0	58.1	-65.7	0.	-0. **	97.5	560.8	270.1	16.4	1.000022
65000.0	56.6	-65.4	0.	-0. **	95.0	561.2	275.9	17.0	1.000021
65500.0	55.2	-65.1	0.	-0. **	92.5	561.6	278.8	16.5	1.000021
66000.0	53.9	-61.4	0.	-0. **	88.7	566.6	280.2	15.5	1.000020
66500.0	52.6	-61.9	0.	-0. **	86.7	566.0	281.1	14.5	1.000019
67000.0	51.3	-62.3	0.	-0. **	84.8	565.4	280.0	13.6	1.000019
67500.0	50.1	-62.8	0.	-0. **	82.9	564.8	278.9	12.8	1.000018
68000.0	48.8	-63.2	0.	-0. **	81.1	564.2	277.3	10.4	1.000018
68500.0	47.7	-63.2	0.	-0. **	79.1	564.2	275.5	7.5	1.000018
69000.0	46.5	-62.0	0.	-0. **	76.8	565.8	273.7	5.8	1.000017
69500.0	45.4	-60.8	0.	-0. **	74.5	567.4	271.7	6.9	1.000017
70000.0	44.3	-59.6	0.	-0. **	72.3	569.0	269.7	8.0	1.000016
70500.0	43.2	-59.2	0.	-0. **	70.4	569.5	266.1	6.6	1.000016
71000.0	42.2	-59.1	0.	-0. **	68.7	569.7	262.2	4.6	1.000015
71500.0	41.2	-59.0	0.	-0. **	67.0	569.9	259.4	2.9	1.000015
72000.0	40.2	-58.8	0.	-0. **	65.4	570.0	259.4	2.0	1.000015
72500.0	39.3	-58.7	0.	-0. **	63.8	570.2	259.4	1.2	1.000014
73000.0	38.3	-58.6	0.	-0. **	62.3	570.3	296.2	1.7	1.000014
73500.0	37.4	-58.5	0.	-0. **	60.8	570.5	345.3	2.7	1.000014
74000.0	36.5	-58.4	0.	-0. **	59.3	570.7	25.3	3.5	1.000013
74500.0	35.7	-58.2	0.	-0. **	57.8	570.8	33.0	4.1	1.000013
75000.0	34.8	-58.1	0.	-0. **	56.4	571.0	40.7	4.6	1.000013
75500.0	34.0	-58.0	0.	-0. **	55.1	571.1	31.8	5.0	1.000012
76000.0	33.2	-57.9	0.	-0. **	53.7	571.3	14.2	5.3	1.000012
76500.0	32.4	-57.8	0.	-0. **	52.4	571.5	356.6	5.7	1.000012
77000.0	31.6	-57.6	0.	-0. **	51.1	571.6	340.9	4.8	1.000011
77500.0	30.9	-57.5	0.	-0. **	49.9	571.8	325.3	3.9	1.000011
78000.0	30.2	-57.4	0.	-0. **	48.7	571.9	313.3	3.6	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0545 HRS MST
ASCENSION NO. 922

UPPER AIR DATA
0542003909
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
78500.0	29.4	-57.3	C.	-0. **	47.5	572.1	307.0	3.9	1.000011
79000.0	28.7	-57.1	0.	-0. **	46.4	572.3	300.7	4.3	1.000010
79500.0	28.1	-57.0	0.	-0. **	45.2	572.5	312.6	3.6	1.000010
80000.0	27.4	-56.9	0.	-0. **	44.1	572.6	331.5	2.5	1.000010
80500.0	26.8	-56.7	0.	-0. **	43.1	572.8	347.8	1.5	1.000010
81000.0	26.1	-56.6	0.	-0. **	42.0	573.0	322.4	2.4	1.000009
81500.0	25.5	-56.4	0.	-0. **	41.0	573.2	296.9	3.3	1.000009
82000.0	24.9	-56.3	0.	-0. **	40.0	573.4	280.1	4.2	1.000009
82500.0	24.3	-56.2	0.	-0. **	39.1	573.6	277.3	5.0	1.000009
83000.0	23.8	-56.0	0.	-0. **	38.1	573.8	274.4	5.8	1.000008
83500.0	23.2	-55.9	0.	-0. **	37.2	573.9	269.9	7.3	1.000008
84000.0	22.7	-55.7	0.	-0. **	36.3	574.1	264.8	9.1	1.000008
84500.0	22.1	-55.6	0.	-0. **	35.4	574.3	259.9	10.8	1.000008
85000.0	21.6	-55.5	0.	-0. **	34.6	574.5	259.9	10.0	1.000008
85500.0	21.1	-55.3	0.	-0. **	33.7	574.7	259.9	9.3	1.000008
86000.0	20.6	-55.2	0.	-0. **	32.9	574.9	260.8	9.1	1.000007
86500.0	20.1	-55.0	0.	-0. **	32.1	575.1	263.3	9.7	1.000007
87000.0	19.7	-54.8	0.	-0. **	31.4	575.3	265.9	10.3	1.000007
87500.0	19.2	-54.6	0.	-0. **	30.6	575.7	268.3	11.3	1.000007
88000.0	18.8	-54.3	0.	-0. **	29.9	576.0	270.5	13.0	1.000007
88500.0	18.3	-54.1	0.	-0. **	29.1	576.3	272.6	14.7	1.000006
89000.0	17.9	-53.9	0.	-0. **	28.4	576.6	274.8	16.3	1.000006
89500.0	17.5	-53.6	0.	-0. **	27.8	576.9	281.2	15.9	1.000006
90000.0	17.1	-53.4	0.	-0. **	27.1	577.3	288.2	15.0	1.000006
90500.0	16.7	-53.1	0.	-0. **	26.4	577.6	295.3	14.1	1.000006
91000.0	16.3	-52.9	0.	-0. **	25.8	577.9	298.4	14.0	1.000006
91500.0	15.9	-52.6	0.	-0. **	25.2	578.2	293.9	15.2	1.000006
92000.0	15.6	-52.4	0.	-0. **	24.6	578.5	289.5	16.4	1.000005
92500.0	15.2	-52.2	0.	-0. **	24.0	578.8	285.0	17.7	1.000005
93000.0	14.9	-51.9	0.	-0. **	23.4	579.2	283.0	16.9	1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0545 HRS MST
ASCENSION NO. 922

UPPER AIR DATA
0542003909
WHITE SANDS SITE
TABLE VI (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.5	-51.7	0.	-0. **	22.8	579.5	281.5	15.7	1.000005
94000.0	14.2	-51.4	0.	-0. **	22.3	579.8	280.0	14.5	1.000005
94500.0	13.9	-51.2	0.	-0. **	21.8	580.1	278.0	14.4	1.000005
95000.0	13.5	-51.0	0.	-0. **	21.2	580.4	275.1	16.5	1.000005
95500.0	13.2	-50.7	0.	-0. **	20.7	580.7	272.1	18.6	1.000005
96000.0	12.9	-50.5	0.	-0. **	20.2	581.1	269.2	20.6	1.000005
96500.0	12.6	-50.2	0.	-0. **	19.7	581.4	271.3	20.3	1.000004
97000.0	12.3	-50.0	0.	-0. **	19.3	581.7	274.5	19.5	1.000004
97500.0	12.1	-49.7	0.	-0. **	18.8	582.0	277.7	18.6	1.000004
98000.0	11.8	-49.5	0.	-0. **	18.4	582.3			1.000004
98500.0	11.5	-49.3	0.	-0. **	17.9	582.6			1.000004
99000.0	11.2	-49.0	0.	-0. **	17.5	582.9			1.000004
99500.0	11.0	-48.8	0.	-0. **	17.1	583.3			1.000004
100000.0	10.7	-48.5	0.	-0. **	16.6	583.6			1.000004
100500.0	10.5	-48.3	0.	-0. **	16.2	583.9			1.000004
101000.0	10.2	-48.1	0.	-0. **	15.9	584.2			1.000004
101500.0	10.0	-47.8	0.	-0. **	15.5	584.5			1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
3989.0	881.3	11.8	-0.7	42.0	1074.9	658.1	0.	0.	1.000267
4000.0	880.9	11.8	-0.8	41.8	1074.7	658.0	359.5	0.0	1.000266
4500.0	865.1	13.4	-1.1	36.6	1049.2	660.0	336.8	1.8	1.000260
5000.0	849.6	14.8	-1.0	33.7	1025.5	661.5	314.2	3.5	1.000254
5500.0	834.4	14.9	-2.1	30.9	1007.0	661.6	291.5	5.3	1.000248
6000.0	819.5	15.0	-3.4	28.1	988.9	661.7	268.9	7.0	1.000242
6500.0	804.7	14.3	-4.6	26.8	973.4	660.8	250.9	9.0	1.000237
7000.0	790.0	13.2	-5.7	26.4	959.5	659.5	250.9	11.7	1.000232
7500.0	775.6	12.0	-6.9	26.0	945.9	658.2	249.6	13.9	1.000228
8000.0	761.5	10.9	-8.0	25.7	932.4	656.8	245.7	15.2	1.000223
8500.0	747.6	9.8	-9.2	25.3	919.2	655.5	243.3	16.4	1.000219
9000.0	734.0	8.7	-10.3	24.9	906.1	654.1	242.1	17.4	1.000215
9500.0	720.6	7.5	-11.5	24.5	893.3	652.8	240.4	18.6	1.000211
10000.0	707.5	6.4	-12.6	24.2	880.6	651.4	238.5	19.9	1.000207
10500.0	694.6	5.3	-13.8	23.8	868.1	650.1	237.0	21.1	1.000204
11000.0	681.9	4.2	-15.0	23.4	855.8	648.8	235.9	22.1	1.000200
11500.0	669.5	3.0	-16.1	23.0	843.7	647.4	236.1	23.2	1.000197
12000.0	656.9	1.6	-15.9	25.8	832.1	645.8	237.5	24.3	1.000194
12500.0	644.6	0.2	-15.8	29.0	820.7	644.1	239.2	25.0	1.000192
13000 0	632.5	-1.2	-15.8	32.3	809.5	642.4	241.5	24.9	1.000190
13500.0	620.5	-2.1	-17.1	30.8	796.9	641.3	244.2	24.7	1.000186
14000.0	608.8	-2.4	-20.3	23.9	782.7	641.0	247.9	24.4	1.000181
14500.0	597.2	-2.8	-23.8	18.1	769.2	640.4	250.9	24.0	1.000176
15000.0	585.6	-4.1	-24.4	19.0	757.9	638.9	252.6	23.6	1.000173
15500.0	574.3	-5.4	-25.0	19.9	746.8	637.3	253.7	23.6	1.000171
16000.0	563.1	-6.7	-25.6	20.7	735.9	635.8	253.6	24.1	1.000168
16500.0	552.2	-8.0	-26.3	21.6	725.2	634.2	252.1	25.1	1.000165
17000.0	541.5	-9.3	-26.9	22.4	714.6	632.7	249.3	26.4	1.000163
17500.0	531.0	-10.6	-27.6	23.3	704.3	631.1	247.6	25.9	1.000160
18000.0	520.7	-11.9	-28.4	24.2	694.0	629.6	246.4	24.8	1.000158

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII (Cont)

HSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
18500.0	510.6	-13.1	-29.1	24.8	683.8	628.1	246.9	23.8	1.000155
19000.0	500.6	-12.3	-30.7	20.2	668.5	628.9	247.8	22.8	1.000152
19500.0	490.6	-12.6	-32.1	18.0	655.9	628.6	248.3	21.6	1.000148
20000.0	480.8	-13.8	-33.1	18.0	645.6	627.2	248.8	20.4	1.000146
20500.0	471.2	-14.9	-34.0	18.0	635.5	625.8	246.5	20.8	1.000143
21000.0	461.7	-16.1	-35.0	18.0	625.6	624.4	243.8	21.4	1.000141
21500.0	452.5	-17.2	-36.0	18.0	615.8	623.0	240.2	22.6	1.000139
22000.0	443.4	-18.4	-36.9	18.0	606.2	621.6	236.1	24.0	1.000137
22500.0	434.6	-19.5	-37.9	18.0	596.8	620.2	234.1	25.0	1.000134
23000.0	425.9	-20.7	-38.9	18.0	587.5	618.8	234.1	25.7	1.000132
23500.0	417.2	-21.3	-39.4	18.0	577.0	618.0	235.7	27.1	1.000130
24000.0	408.7	-21.8	-39.8	18.0	566.4	617.4	240.0	29.4	1.000127
24500.0	400.3	-22.3	-40.3	18.0	555.9	616.8	244.6	31.9	1.000125
25000.0	391.9	-23.4	-40.9	18.5	546.6	615.4	249.6	34.8	1.000123
25500.0	383.7	-24.5	-41.6	19.1	537.6	614.0	253.8	37.8	1.000121
26000.0	375.6	-25.7	-42.3	19.6	528.7	612.6	254.7	41.8	1.000119
26500.0	367.7	-26.8	-43.0	20.2	519.9	611.2	255.6	45.7	1.000117
27000.0	359.9	-27.9	-43.7	20.8	511.3	609.8	254.7	47.1	1.000115
27500.0	352.3	-29.1	-44.5	21.3	502.9	608.4	253.7	48.6	1.000113
28000.0	344.9	-30.2	-45.2	21.9	494.6	606.9	251.2	50.4	1.000111
28500.0	337.7	-31.3	-46.0	22.4	486.5	605.5	248.5	52.3	1.000109
29000.0	330.5	-32.5	-46.8	23.0	478.5	604.1	247.0	54.0	1.000107
29500.0	323.6	-33.6	-47.5	23.5	470.6	602.7	245.8	55.6	1.000105
30000.0	316.8	-34.8	-48.3	24.1	462.9	601.2	244.8	56.1	1.000104
30500.0	310.1	-35.9	-49.1	24.7	455.3	599.8	243.9	55.7	1.000102
31000.0	303.4	-37.1	-50.3	24.4**	447.8	598.2	243.4	55.7	1.000100
31500.0	296.5	-38.5	-52.1	22.7**	440.2	596.5	244.3	57.2	1.000098
32000.0	289.8	-39.8	-53.9	21.1**	432.7	594.8	245.1	58.6	1.000097
32500.0	283.2	-41.2	-55.7	19.4**	425.4	593.0	246.0	58.3	1.000095
33000.0	276.8	-42.6	-57.6	17.8**	418.2	591.3	246.8	57.8	1.000093

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
33500.0	270.5	-43.9	-59.5	16.2**	411.2	589.5	247.6	59.2	1.000092
34000.0	264.4	-45.3	-61.5	14.5**	404.2	587.8	248.3	61.4	1.000090
34500.0	258.4	-46.7	-63.6	12.9**	397.5	586.0	248.9	62.3	1.000089
35000.0	252.5	-48.0	-65.7	11.2**	390.8	584.2	249.4	61.6	1.000087
35500.0	246.8	-49.4	-68.0	9.6**	384.3	582.5	249.8	60.8	1.000086
36000.0	241.2	-50.7	-70.4	7.9**	377.9	580.7	250.6	61.6	1.000084
36500.0	235.7	-52.1	-73.0	6.3**	371.6	578.9	251.5	62.5	1.000083
37000.0	230.4	-53.5	-76.1	4.6**	365.4	577.1	253.1	63.6	1.000081
37500.0	225.2	-54.8	-79.8	3.0**	359.4	575.3	255.3	64.9	1.000080
38000.0	220.1	-56.2	-85.5	1.3**	353.4	573.5	257.5	66.2	1.000079
38500.0	215.0	-57.5	0.	-0. **	347.5	571.8	259.7	67.3	1.000077
39000.0	209.9	-58.7	0.	-0. **	341.0	570.2	261.9	68.4	1.000076
39500.0	204.9	-59.9	0.	-0. **	334.7	568.6	264.3	68.6	1.000075
40000.0	200.0	-60.8	0.	-0. **	328.1	567.4	266.8	68.4	1.000073
40500.0	195.1	-61.3	0.	-0. **	320.8	566.8	269.0	68.2	1.000071
41000.0	190.4	-61.7	0.	-0. **	313.7	566.2	270.1	67.9	1.000070
41500.0	185.8	-62.2	0.	-0. **	306.8	565.6	271.1	67.6	1.000068
42000.0	181.3	-62.6	0.	-0. **	300.0	565.0	270.1	66.7	1.000067
42500.0	176.9	-63.1	0.	-0. **	293.4	564.3	268.7	65.7	1.000065
43000.0	172.6	-63.2	0.	-0. **	286.4	564.2	266.8	64.8	1.000064
43500.0	168.4	-62.7	0.	-0. **	278.8	564.9	264.5	64.0	1.000062
44000.0	164.3	-62.6	0.	-0. **	271.8	565.0	261.7	63.5	1.000061
44500.0	160.2	-63.0	0.	-0. **	265.6	564.5	257.9	63.5	1.000059
45000.0	156.3	-63.3	0.	-0. **	259.5	564.0	254.2	63.5	1.000058
45500.0	152.4	-63.7	0.	-0. **	253.6	563.5	253.9	61.2	1.000056
46000.0	148.7	-64.1	0.	-0. **	247.9	562.9	253.8	58.8	1.000055
46500.0	145.0	-64.5	0.	-0. **	242.2	562.4	253.4	57.4	1.000054
47000.0	141.5	-64.9	0.	-0. **	236.7	561.9	252.7	57.2	1.000053
47500.0	138.0	-65.3	0.	-0. **	231.3	561.4	252.4	56.8	1.000052
48000.0	134.6	-65.7	0.	-0. **	226.1	560.8	253.7	55.9	1.000050

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII (Cont)

WSTN SITE COORDINATES
E 488,500 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
48500.0	131.3	-66.1	0.	-0. **	220.9	560.3	255.0	55.1	1.000049
49000.0	128.1	-66.5	0.	-0. **	215.9	559.8	256.2	58.2	1.000048
49500.0	124.9	-66.9	0.	-0. **	211.0	559.2	257.3	61.4	1.000047
50000.0	121.9	-67.3	0.	-0. **	206.2	558.7	258.9	62.0	1.000046
50500.0	118.9	-67.9	0.	-0. **	201.8	557.8	260.7	61.3	1.000045
51000.0	115.9	-68.1	0.	-0. **	197.8	556.3	262.5	60.4	1.000044
51500.0	113.0	-69.5	0.	-0. **	193.3	555.7	264.7	58.5	1.000043
52000.0	110.1	-69.6	0.	-0. **	188.5	555.6	266.9	56.6	1.000042
52500.0	107.4	-69.7	0.	-0. **	183.9	555.4	268.0	55.2	1.000041
53000.0	104.7	-69.8	0.	-0. **	179.4	555.3	268.2	48.7	1.000040
53500.0	102.0	-69.9	0.	-0. **	174.9	555.1	267.9	44.6	1.000039
54000.0	99.5	-70.1	0.	-0. **	170.7	554.9	265.4	42.4	1.000038
54500.0	97.0	-70.4	0.	-0. **	166.6	554.5	263.0	40.3	1.000037
55000.0	94.5	-70.7	0.	-0. **	162.6	554.1	260.3	39.5	1.000036
55500.0	92.1	-71.0	0.	-0. **	158.8	553.6	257.7	38.7	1.000035
56000.0	89.8	-71.3	0.	-0. **	155.0	553.2	254.9	40.4	1.000035
56500.0	87.5	-71.6	0.	-0. **	151.3	552.8	252.2	43.0	1.000034
57000.0	85.3	-71.3	0.	-0. **	147.3	553.2	250.7	44.4	1.000033
57500.0	83.2	-69.8	0.	-0. **	142.8	555.3	250.7	44.5	1.000032
58000.0	81.1	-68.2	0.	-0. **	138.0	557.4	251.1	43.7	1.000031
58500.0	79.1	-66.7	0.	-0. **	133.5	559.5	253.3	38.2	1.000030
59000.0	77.2	-65.1	0.	-0. **	129.2	561.6	255.6	32.7	1.000029
59500.0	75.2	-63.6	0.	-0. **	125.1	563.7	260.2	27.4	1.000028
60000.0	73.4	-64.0	0.	-0. **	122.3	569.1	265.3	22.1	1.000027
60500.0	71.6	-64.7	0.	-0. **	119.7	562.2	269.4	18.2	1.000027
61000.0	69.8	-65.4	0.	-0. **	117.1	561.2	272.3	15.7	1.000026
61500.0	68.1	-66.1	0.	-0. **	114.6	560.3	274.6	13.6	1.000026
62000.0	66.4	-66.8	0.	-0. **	112.2	559.4	269.0	13.8	1.000025
62500.0	64.8	-67.3	0.	-0. **	109.7	558.6	263.3	18.1	1.000024
63000.0	63.2	-66.6	0.	-0. **	106.6	559.6	262.7	18.6	1.000024

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 468,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
63500.0	61.7	-65.9	0.	-0. **	103.7	560.5	264.6	18.2	1.000023
64000.0	60.1	-65.2	0.	-0. **	100.8	561.5	267.1	17.4	1.000022
64500.0	58.7	-64.5	0.	-0. **	98.0	562.4	271.3	15.4	1.000022
65000.0	57.2	-63.8	0.	-0. **	95.2	563.4	279.5	13.5	1.000021
65500.0	55.8	-63.2	0.	-0. **	92.6	564.2	277.3	11.7	1.000021
66000.0	54.5	-63.5	0.	-0. **	90.5	563.8	278.6	9.9	1.000020
66500.0	53.1	-63.8	0.	-0. **	88.4	563.4	278.9	9.0	1.000020
67000.0	51.8	-64.0	0.	-0. **	86.4	563.1	277.5	9.6	1.000019
67500.0	50.6	-64.3	0.	-0. **	84.4	562.7	276.1	10.2	1.000019
68000.0	49.3	-63.7	0.	-0. **	82.1	563.5	272.5	11.2	1.000018
68500.0	48.1	-62.5	0.	-0. **	79.6	565.1	268.4	12.3	1.000018
69000.0	47.0	-61.3	0.	-0. **	77.3	566.7	267.6	12.5	1.000017
69500.0	45.8	-60.3	0.	-0. **	75.0	568.1	274.1	10.5	1.000017
70000.0	44.8	-60.1	0.	-0. **	73.2	568.3	280.6	8.6	1.000016
70500.0	43.7	-59.9	0.	-0. **	71.4	568.6	280.5	6.8	1.000016
71000.0	42.7	-59.8	0.	-0. **	69.7	568.8	277.7	5.1	1.000016
71500.0	41.7	-59.6	0.	-0. **	68.0	569.0	280.0	3.6	1.000015
72000.0	40.7	-59.5	0.	-0. **	66.3	569.2	321.7	4.2	1.000015
72500.0	39.7	-59.3	0.	-0. **	64.7	569.4	3.4	4.7	1.000014
73000.0	38.8	-59.1	0.	-0. **	63.1	569.7	17.5	4.7	1.000014
73500.0	37.9	-59.0	0.	-0. **	61.6	569.9	2.1	4.3	1.000014
74000.0	37.0	-58.8	0.	-0. **	60.1	570.1	346.8	3.9	1.000013
74500.0	36.1	-58.6	0.	-0. **	58.6	570.3	359.4	4.4	1.000013
75000.0	35.3	-58.5	0.	-0. **	57.2	570.5	17.8	5.1	1.000013
75500.0	34.4	-58.3	0.	-0. **	55.8	570.8	35.7	5.6	1.000012
76000.0	33.6	-58.1	0.	-0. **	54.5	571.0	51.5	5.2	1.000012
76500.0	32.8	-58.0	0.	-0. **	53.1	571.2	67.2	4.8	1.000012
77000.0	32.0	-57.8	0.	-0. **	51.8	571.4	77.8	4.7	1.000012
77500.0	31.3	-57.6	0.	-0. **	50.6	571.6	83.4	4.8	1.000011
78000.0	30.6	-57.5	0.	-0. **	49.4	571.8	89.0	4.9	1.000011

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII (Cont)

MSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
78500.0	29.8	-57.3	0.	-0. **	48.2	572.1	89.9	4.8	1.000011
79000.0	29.1	-57.1	0.	-0. **	47.0	572.3	90.0	4.8	1.000010
79500.0	28.4	-57.0	0.	-0. **	45.8	572.5	89.0	4.6	1.000010
80000.0	27.8	-56.8	0.	-0. **	44.7	572.7	83.3	3.6	1.000010
80500.0	27.1	-56.6	0.	-0. **	43.6	572.9	77.6	2.6	1.000010
81000.0	26.5	-56.5	0.	-0. **	42.6	573.2	74.9	1.8	1.000009
81500.0	25.8	-56.3	0.	-0. **	41.5	573.4	74.9	1.2	1.000009
82000.0	25.2	-56.1	0.	-0. **	40.5	573.6	74.9	0.6	1.000009
82500.0	24.6	-56.0	0.	-0. **	39.5	573.8	24.7	1.9	1.000009
83000.0	24.1	-55.8	0.	-0. **	38.6	574.0	322.2	3.8	1.000009
83500.0	23.5	-55.6	0.	-0. **	37.6	574.3	259.8	5.6	1.000008
84000.0	22.9	-55.5	0.	-0. **	36.7	574.5	260.7	6.4	1.000008
84500.0	22.4	-55.3	0.	-0. **	35.8	574.7	267.0	7.1	1.000008
85000.0	21.9	-55.2	0.	-0. **	35.0	574.9	273.3	7.8	1.000008
85500.0	21.4	-55.0	0.	-0. **	34.1	575.1	281.6	7.7	1.000008
86000.0	20.9	-54.8	0.	-0. **	33.3	575.3	290.0	7.5	1.000007
86500.0	20.4	-54.7	0.	-0. **	32.5	575.6	298.4	7.3	1.000007
87000.0	19.9	-54.5	0.	-0. **	31.7	575.8	310.7	7.4	1.000007
87500.0	19.4	-54.3	0.	-0. **	30.9	576.0	323.0	7.5	1.000007
88000.0	19.0	-54.2	0.	-0. **	30.2	576.2	335.4	7.7	1.000007
88500.0	18.5	-54.0	0.	-0. **	29.4	576.4	338.4	7.2	1.000007
89000.0	18.1	-53.8	0.	-0. **	28.7	576.7	341.3	6.8	1.000006
89500.0	17.6	-53.7	0.	-0. **	28.0	576.9	344.0	6.3	1.000006
90000.0	17.2	-53.5	0.	-0. **	27.3	577.1	329.2	6.0	1.000006
90500.0	16.8	-53.3	0.	-0. **	26.7	577.3	314.3	5.7	1.000006
91000.0	16.4	-53.1	0.	-0. **	26.0	577.6	299.6	5.4	1.000006
91500.0	16.0	-52.8	0.	-0. **	25.4	578.0	310.5	4.9	1.000006
92000.0	15.7	-52.5	0.	-0. **	24.8	578.4	321.4	4.4	1.000006
92500.0	15.3	-52.2	0.	-0. **	24.2	578.8	332.2	3.9	1.000005
93000.0	15.0	-51.9	0.	-0. **	23.6	579.2	344.8	4.9	1.000005

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,580 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT DEGREES CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
93500.0	14.6	-51.6	0.	-0. **	23.0	579.6	357.5	5.9	1.000005
94000.0	14.3	-51.3	0.	-0. **	22.4	580.0	10.2	6.9	1.000005
94500.0	14.0	-51.0	0.	-0. **	21.9	580.4	19.3	8.6	1.000005
95000.0	13.6	-50.7	0.	-0. **	21.4	580.8	28.0	10.3	1.000005
95500.0	13.3	-50.4	0.	-0. **	20.8	581.2	36.8	12.1	1.000005
96000.0	13.0	-50.1	0.	-0. **	20.3	581.6	40.5	11.8	1.000005
96500.0	12.7	-49.7	0.	-0. **	19.8	582.0	43.2	11.1	1.000004
97000.0	12.4	-49.4	0.	-0. **	19.4	582.4	45.9	10.4	1.000004
97500.0	12.1	-49.1	0.	-0. **	18.9	582.8	47.8	9.9	1.000004
98000.0	11.9	-48.8	0.	-0. **	18.4	583.2	49.5	9.5	1.000004
98500.0	11.6	-48.5	0.	-0. **	18.0	583.6	51.2	9.1	1.000004
99000.0	11.3	-47.8	0.	-0. **	17.5	584.6	46.8	7.8	1.000004
99500.0	11.1	-46.7	0.	-0. **	17.1	585.9	39.7	6.1	1.000004
100000.0	10.8	-45.7	0.	-0. **	16.6	587.2	32.5	4.3	1.000004
100500.0	10.6	-44.7	0.	-0. **	16.2	588.5	21.2	3.4	1.000004
101000.0	10.4	-43.7	0.	-0. **	15.7	589.8	5.3	3.6	1.000004
101500.0	10.1	-42.7	0.	-0. **	15.3	591.2	349.3	3.7	1.000003
102000.0	9.9	-42.0	0.	-0. **	14.9	592.0	333.3	3.9	1.000003
102500.0	9.7	-41.7	0.	-0. **	14.6	592.4	322.3	4.0	1.000003
103000.0	9.5	-41.4	0.	-0. **	14.2	592.8	312.9	4.1	1.000003
103500.0	9.3	-41.1	0.	-0. **	13.9	593.2	303.4	4.3	1.000003
104000.0	9.1	-40.8	0.	-0. **	13.6	593.6	293.9	4.4	1.000003
104500.0	8.9	-40.5	0.	-0. **	13.3	594.0	290.5	4.5	1.000003
105000.0	8.7	-40.2	0.	-0. **	13.0	594.3	289.9	4.5	1.000003
105500.0	8.5	-39.9	0.	-0. **	12.7	594.7	289.4	4.6	1.000003
106000.0	8.3	-40.0	0.	-0. **	12.4	594.5	288.9	4.7	1.000003
106500.0	8.1	-40.1	0.	-0. **	12.1	594.4			1.000003
107000.0	7.9	-40.2	0.	-0. **	11.9	594.3			1.000003
107500.0	7.8	-40.3	0.	-0. **	11.6	594.1			1.000003
108000.0	7.6	-40.4	0.	-0. **	11.4	594.0			1.000003

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

STATION ALTITUDE 3989.0 FEET MSL
22 NOV. 66 0845 HRS MST
ASCENSION NO. 923

UPPER AIR DATA
0542003910
WHITE SANDS SITE
TABLE VII (Cont)

WSTM SITE COORDINATES
E 488,980 FEET
N 185,045 FEET

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES CENTIGRADE	TEMPERATURE DEWPOINT CENTIGRADE	RELATIVE HUMIDITY PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES(TN)	WIND DATA SPEED KNOTS	INDEX OF REFRACTION
108500.0	7.4	-40.5	0.	-0. **	11.1	593.9			1.000002
109000.0	7.3	-40.6	0.	-0. **	10.9	593.7			1.000002
109500.0	7.1	-40.8	0.	-0. **	10.6	593.6			1.000002
110000.0	6.9	-40.9	0.	-0. **	10.4	593.5			1.000002
110500.0	6.8	-41.0	0.	-0. **	10.2	593.3			1.000002
111000.0	6.6	-41.1	0.	-0. **	10.0	593.2			1.000002

** AT LEAST ONE ASSUMED RELATIVE HUMIDITY VALUE WAS USED IN THE INTERPOLATION.

RELEASE TIME (MST)		SECOND-STAGE IMPACT DISPLACEMENT IN MILES DUE TO WIND								AZIMUTH (DEGREES)	THEORETICAL IMPACT FROM LAUNCHER (IN MILES)		
		11-216 FT		216-4000 FT		4000-76000 FT		TOTAL					
RAWINSONDE	PIBAL	N-S	E-W	N-S	E-W	N-S	E-W	N-S	E-W		RANGE	N-S	E-W
0545	0645	1.4S	2.0E	2.6S	10.1W	2.2S	18.0W	6.2S	26.1W	351.3	74.0	73.1N	11.2W
0545	0725	1.6S	1.8E	3.5S	7.7W	2.2S	18.0W	7.3S	23.9W	352.9	72.6	72.0	9.0
0545	0745	4.3S	0.3E	6.0S	4.9W	2.2S	18.0W	12.5S	22.6W	353.4	67.2	66.8	7.7
0545	0800	5.5S	0.9E	2.5S	3.0W	2.2S	18.0W	10.2S	20.1W	355.7	69.3	69.1	5.2
0545	0815	3.3S	1.0W	7.1S	3.0W	2.2S	18.0W	12.6S	22.0W	353.9	67.1	66.7	7.1
0545	0825	3.4S	1.2W	6.9S	2.7W	2.2S	18.0W	12.5S	21.9W	354.0	67.2	66.8	7.0
0545	0835	4.1S	0.7E	6.0S	1.3W	2.2S	18.0W	12.3S	18.6W	356.8	67.1	67.0	3.7
0545	0845	0.3S	1.7W	3.7S	1.4W	2.2S	19.0W	6.2S	21.1W	355.1	73.4	73.1	6.2
0845	0902	1.0S	0.6W	2.7S	2.1W	2.2S	19.5W	5.9S	22.2W	354.3	73.8	73.4	7.3

	AZIMUTH (DEGREES)	MILES FROM LAUNCHER		
		RANGE	N-S	E-W
LAUNCHER SETTING (ELEVATION 84.2 DEGREES QE)	014.0	81.7	79.3N	19.8E
NO WIND IMPACT	010.6	80.7	79.3N	14.9E
PREDICTED SECOND-STAGE IMPACT	357.5	70.0	69.9N	3.1W
SECOND-STAGE IMPACT, RADAR TRACK	340.9	83.5	79.5N	27.4W
PREDICTED BOOSTER IMPACT	018.0	1.5	1.4N	0.5E
ACTUAL BOOSTER IMPACT	N/A	N/A	N/A	N/A

TABLE IX. IMPACT PREDICTION DATA (Cont)
NIKE-HYDAC STV (SR-043)

UNCLASSIFIED

Security Classification

DOCUMENT CONTROL DATA - R&D

(Security classification of title, body of abstract and indexing annotation must be entered when the overall report is classified)

1. ORIGINATING ACTIVITY (Corporate author)
U. S. Army Electronics Command
Ft. Monmouth, New Jersey

2a. REPORT SECURITY CLASSIFICATION
UNCLASSIFIED

2b. GROUP

3. REPORT TITLE

METEOROLOGICAL DATA REPORT, NIKE-HYDAC STV (SR-043)

4. DESCRIPTIVE NOTES (Type of report and inclusive dates)

5. AUTHOR(S) (Last name, first name, initial)

Richart, H. M.

6. REPORT DATE	7a. TOTAL NO. OF PAGES	7b. NO. OF REFS
December 1966	23	None

8a. CONTRACT OR GRANT NO.	9a. ORIGINATOR'S REPORT NUMBER(S)
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c. DA Task 1V650212A127-02	9b. OTHER REPORT NO(S) (Any other numbers that may be assigned this report)
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10. AVAILABILITY/LIMITATION NOTICES

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11. SUPPLEMENTARY NOTES	12. SPONSORING MILITARY ACTIVITY
	U. S. Army Electronics Command Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico

13. ABSTRACT

Meteorological data gathered for the launching of Nike-Hydac STV (SR-043) are presented for the Ballistic Systems Division, U. S. Air Force, Avco Corporation and for ballistic studies. The data appear, along with calculated ballistic data, in tabular form.

DD FORM 1 JAN 64 1473

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Security Classification

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Security Classification

14. KEY WORDS	LINK A		LINK B		LINK C	
	ROLE	WT	ROLE	WT	ROLE	WT
1. Ballistics 2. Meteorology 3. Wind						

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